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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,530	04/15/2002	Wolfram Angerer	P/3013-13	4126

2352 7590 06/11/2003

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EXAMINER
VANAMAN, FRANK BENNETT

ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/030,530	Applicant(s) Angerer et al.
	Examiner Vanaman	Art Unit 3618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 16-30 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 16-30 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on Apr 15, 2002 is/are a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☒ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on 05/09/2000. No copy of the German application has been received from the international office at this time.

Information Disclosure Statement

2. The information disclosure statement filed fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the power supply system, a fuel cell, an internal combustion engine and a mechanical connection to the internal combustion engine must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

4. The abstract of the disclosure is objected to because (a) it is too long, (b) the phrase "The invention relates to" is redundant and should be deleted, (c) it does not commence on a separate sheet, and (d) the reference to a figure to be published should be deleted. Correction is required. See MPEP § 608.01(b).

5. The specification lacks the headings preferred for the framing of a U.S. Patent application: each of the following lettered items should appear in upper case, without underlining or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) Title of the Invention.
(b) Cross-Reference to Related Applications.
(c) Statement Regarding Federally Sponsored Research or Development.
(d) Reference to a "Sequence Listing," a table, or a computer program listing appendix submitted on compact disc (see 37 CFR 1.52(e)(5)).

(e) Background of the Invention.
1. Field of the Invention.
2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) Brief Summary of the Invention.
(g) Brief Description of the Several Views of the Drawing(s).
(h) Detailed Description of the Invention.
(I) Claim or Claims (commencing on a separate sheet).
(j) Abstract of the Disclosure (commencing on a separate sheet).
(k) Drawings.
(l) Sequence Listing, if on paper (see 37 CFR 1.821-1.825).

6. The disclosure is objected to because of the following informalities: on page 1, line 6, the reference to patent claims in the specification should be deleted.

Appropriate correction is required.

Claim Objections

7. Newly drafted claims 16, 24, 25, 28, 29 and 30 are objected to for the following informalities: In claim 16, line 1, it appears as though "or" should be --for--; 24, 25, and 29 are objected to because they have been written to depend from themselves. For the purpose of this office action, claims 24 and 25 are assumed dependent from claim 22, claim 29 is assumed dependent from claim 28. In claims 28-30 the preambles of the claims do not match that of the claim from which they depend. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. Claims 19, 20, 22, 24-26 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 19, lines 1 and 3, and claim 20, lines 1 and 3, "electrical drive machine" lacks a clear antecedent basis, although a recitation of "electrical machine" would be provided with an adequate antecedent; in claim 22, line 2, the recitation "the axial direction" is confusing in that it is not clear what axis is being referred to; in claim 26, line 2, it is not clear if "and annular in shape" provides a further limitation of the claims in view of the

recitation of claim 24, lines 1-2; in claim 30, lines 4 and 6, the terms "the traction mode" and "the shaft drive" lack a clear antecedent basis.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 16-18 and 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raby (US 3,925,695) in view of Rasinsky et al. (US 6,404,082, filed 9/1999). Raby teaches an electric drive for a shaft, including a stator (16, 18) a rotor (38, 40) to which is connected a drive shaft (34, 36, 54) which is connected to the rotor, extending through the electric machine, the rotor, stator and shaft all being coaxial, the motor including a resistor unit comprising plural resistors (62, 80, 82, 84, 136, 138, 140, etc.), which may be engaged during a braking procedure in that it is connected both electrically and mechanically in the motor (see figure 4), the resistors having a modular construction which allows them to be arrayed along the shaft axis (see figure 2), circumferentially outwardly of the shaft, and having an annular shape (figure 3), which encloses the drive shaft.

While the reference to Raby fails to specifically teach an end to the shaft which is connectable to a shaft, the provision of an end of a motor shaft for the purpose of driving a load is so common as to be considered inherent, in that the provision of such a connection is used to allow the motor to drive the load for which it is intended.

The reference to Raby fails to teach a further convertor element connected to the machine. Rasinsky et al. teach a convertor unit (25) electrically (figure 2) and mechanically connected to the motor, the electric machine and convertor plate including mating surfaces (30, 40, 26) which allow a force-fit connection. It would have been obvious to one of ordinary skill in the art at the

time of the invention to provide the electric machine taught by Raby with the mechanically and electrically connected convertor unit taught by Rasinsky et al. for the purpose of additionally mounting the diode bridge as close as possible to the rotor portion of the machine.

As regards claim 27, while the electric machine taught by Raby and modified by Rasinsky et al. is not explicitly referred to as a transverse flux machine, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ a transverse flux machine structure with the resistor units taught by Raby for the purpose of advantageously employing a transverse flux structure to improve operation.

11. Claims 16, 20 and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raby in view of McAdams, Jr. (US 3,961,212). Raby teaches an electric drive for a shaft, including a stator (16, 18) a rotor (38, 40) to which is connected a drive shaft (34, 36, 54) which is connected to the rotor, extending through the electric machine, the rotor, stator and shaft all being coaxial, the motor including a resistor unit comprising plural resistors (62, 80, 82, 84, 136, 138, 140, etc.), which may be engaged during a braking procedure in that it is connected both electrically and mechanically in the motor (see figure 4), the resistors having a modular construction which allows them to be arrayed along the shaft axis (see figure 2), circumferentially outwardly of the shaft, and having an annular shape (figure 3), which encloses the drive shaft.

While the reference to Raby fails to specifically teach an end to the shaft which is connectable to a shaft, the provision of an end of a motor shaft for the purpose of driving a load is so common as to be considered inherent, in that the provision of such a connection is used to allow the motor to drive the load for which it is intended.

The reference to Raby fails to teach a further convertor element connected to the machine, with the convertor arranged at an end surface of the machine. McAdams, Jr. teaches an electric machine with a convertor circuit (figure 2) mounted on circuit boards (74, 75) arranged proximate an end surface (76) of the machine. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the electrical machine of Raby with a convertor circuit for

operating the motor, wherein the circuit is located proximate an end surface of the machine as taught by McAdams, Jr., for the purpose of mounting the circuit close to the machine to reduce line losses.

As regards claim 27, while the electric machine taught by Raby and modified by McAdams, Jr. is not explicitly referred to as a transverse flux machine, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ a transverse flux machine structure with the resistor units taught by Raby for the purpose of advantageously employing a transverse flux structure to improve operation.

12. Claims 16-20 and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raby in view of Kinoshita et al. (US 5,517,401). The reference of Raby is discussed above and fails to teach a further convertor element connected to the machine, with the convertor arranged at an end surface of the machine, on the circumference. Kinoshita et al. teach an electric machine (3) with a convertor unit (101) connected electrically and mechanically to the electric machine, arranged proximate an end surface (76) of the machine wherein the circumference of the controller is located on the circumference of the electric machine (see figures 19-22; and col. 9, line 52 through col. 10, line 64). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the electrical machine of Raby with a convertor circuit for operating the motor, wherein the circuit is located proximate an end surface of the machine at its circumference as taught by Kinoshita et al., for the purpose of mounting the circuit close to the machine to reduce line losses and electrical faults.

As regards claim 27, while the electric machine taught by Raby and modified by Kinoshita et al. is not explicitly referred to as a transverse flux machine, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ a transverse flux machine structure with the resistor units taught by Raby for the purpose of advantageously employing a transverse flux structure to improve operation.

13. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raby in view of McAdams, Jr., and Lyons (US 5,950,752). The references of Raby and McAdams, Jr., are discussed above and fail to teach the specific provision of a power supply for the machine, including a fuel cell. Lyons teaches a vehicle drive scheme including both an internal combustion engine (18) and a fuel cell (24) for providing power (through 14) to an electric machine (40) via an electrical coupling (28m). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a vehicle power source including a fuel cell and internal combustion engine as taught by Lyons to operate the motor taught by Raby as modified by McAdams, Jr., for the purpose of providing a dual source supply of energy (i.e., the engine and fuel cell) for the purpose of allowing a vehicle to be operated from a fuel cell when it is not feasible to operate it from the internal combustion engine.

14. Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raby in view of McAdams, Jr., and Lateur et al. (US 5,823,280). The references of Raby, and McAdams, Jr., are discussed above and fail to teach the electric machine as being used in a vehicle power system including a power supply for the machine, and internal combustion engine being physically coupled to the electric machine, wherein the machine can operate as a generator. Lateur et al. teach a parallel hybrid vehicle having an internal combustion engine (22) which is connected to drive a vehicle (through 62, 20), the engine being physically connected to an electric machine (motor/generator 12) through a coupling (82, 83, see figure 3), so as to allow either or both electric machine and engine to drive the vehicle, the electric machine being operable as a generator and connected to a power supply (24) through a controller (16). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the electric machine of Raby as modified by McAdams, Jr. in a power system including a direct coupled internal combustion engine and power supply as taught by Lateur et al., with the machine having a common structure operable as both a motor and generator, for the purpose of providing the

compact electric machine in a hybrid vehicle in order to conserve space, by the provision of a more compact motor/convertor structure.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Palloch (US 3,885,175), Sohnle (US 4,059,778), Myers (US 4,330,045), Love et al. (US 4,930,590), and Bevington (US 6,359,353, filed 7/2000) teach motor and vehicle structures of pertinence.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is (703) 308-0424. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-1113.

As of May 1, 2003, any response to this action should be mailed to:

Mail Stop ____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to :

(703) 305-3597 or 305-7687 (for formal communications intended for entry; informal or draft communications may be faxed to the same number but should be clearly labeled "UNOFFICIAL" or "DRAFT")

The Office has also established electronic fax servers for Technology Center 3600 as follows:

703-872-9326 (Official communications)
703-872-9327 (Official After Final communications)
703-872-9325 (Customer Service)

F. VANAMAN
Primary Examiner
Art Unit 3618

F. Vanaman
June 9, 2003

6/9/03